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Are some dictators more attractive to foreign investors?

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Abstract: Since political uncertainty is greater in dictatorship than in democracy, we test the hypothesis that foreign investors scrutinize public information on dictator to assess this risk. In particular, we assume they use five suitable dictators' characteristics: age, political experience, education level, education in economics, and prior experience in business. We perform fixed effects estimations to explain FDI inflows on an unbalanced panel of 100 dictatorial countries from 1973 to 2008. We find that educated dictators are more attractive to foreign investors. We obtain strong evidence that greater educational attainment of the leader favors FDI. We also find evidence that education in economics of the leader enhances FDI. By contrast, age, political experience, and prior experience in business have no relationship with FDI. Our results are robust to several tests and checks, including the comparison with democracies.

JEL Codes: F21, F23.

Keywords: foreign direct investment, dictatorship, leader characteristics, political risk.

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1. Introduction

Foreign direct investment (FDI) is a driving force of global integration for a nation. One of the major obstacles to FDI is the risk of expropriation, since the protection of private ownership increases individual incentives to invest in the country. Another risk of international investment is related to the implementation of inappropriate macroeconomic policy and more broadly no business friendly public policy. These risks are the components of the political risk which international investors face. As a consequence, institutions associated with the protection of property rights have been widely shown to enhance FDI (Gastanaga, Nugent and Pashamova, 1998; Daude and Stein, 2007; Asiedu and Lien, 2011). So have institutional devices that guarantee policy stability and limit government interference in the economy (Büthe and Milner, 2008; Jensen, 2008).

Formal institutions partly explain why democracies tend to attract more FDI than nondemocratic regimes (e.g., Jensen, 2003, 2008) but have less relevance in explaining the variations in FDI inflows in regimes in which such institutions are either inexistent or less effective (Gehlbach and Keefer, 2012; Jensen, Malesky and Weymouth, 2014). In this paper, we switch the focus from political institutions toward an overlooked factor, namely the personal characteristics of the dictator. In regimes in which policy choices depend foremost on the discretion of a single individual, the leader's characteristics can have a greater role to attract FDI than institutions. Indeed, these characteristics can help potential investors anticipate dictators' future policy choices when taking their investment decisions.

We consider two sets of characteristics which could be useful for investors: first, personal characteristics that indicate the leader's competence in economic matters (namely his educational attainment, whether he studied economics, and whether he has prior working experience in the business sector); second, personal characteristics that may influence his expected tenure length and thereby his incentives to expropriate investment (namely his age and his prior political experience).

The empirical purpose of this study is thus to examine the impact of dictators' characteristics on FDI inflows. We perform fixed effects estimations to explain FDI inflows on an unbalanced panel of 100 countries from 1973 to 2008. We find that educated leaders are more attractive for foreign investors in dictatorships: greater

educational attainment is associated with higher FDI inflows. We also show evidence that dictators who studied economics are more appealing to foreign investors. However, we find no relationship between dictators' age and prior political experience and FDI inflows: we interpret this finding as evidence that incompetence deters investment to a greater extent than expropriation risk. Additionally, we do not observe the same link between leaders' education and inward FDI in democracies, supporting the view that leaders' education is a signal used by foreign investors only when executive power is unconstrained.

The contribution of this paper is twofold. We first advance the understanding of the determinants of FDI inflows: this literature has mainly focused on the macroeconomic conditions and the institutional framework of the host country. Even studies specifically focusing on dictatorships adopt a strictly institutional perspective (Gehlbach and Keefer, 2012; Bastiaens, 2016; Wright and Zhu, 2018). We extend this literature toward the traits of leaders, and thereby contribute to explaining FDI inflows when institutional constraints are weak.

We also contribute to the literature on the impact of leaders' profiles on economic outcomes. Several studies (e.g., Dreher et al., 2009; Besley, Montalvo and Reynal-Querol, 2011; Congleton and Zhang, 2013) have shown that leaders' characteristics are related to their macroeconomic performance, because they influence their policy preferences, their technical skills, or their dedication to public interest. We identify another (indirect) mechanism at work behind these findings by showing that leaders' profile does not only influence their policy choices but also impacts investors' expectations and thus influences macroeconomic performance through this channel.

The remainder of the paper is organized as follows. Section 2 discusses existing literature. Section 3 details the expected relationship between dictator characteristics and investor decision. Section 4 presents the data and the methodology used in the paper to test our hypotheses. Section 5 displays the main estimations. In Section 6, we proceed with some additional tests and robustness checks. Section 7 concludes.

2. Related literature

In this section we present literature associated with our research question. We first briefly

survey the literature on the determinants of FDI inflows. We then report the main results of the studies devoted to the economic impact of leaders' profiles.

2.1 Determinants of FDI inflows

There is an extensive literature on the determinants of FDI inflows. Companies choose locations for their investments based on their expected profitability. As a consequence, they care about factors minimizing costs and maximizing revenues. Determinants of FDI can therefore be divided into two broad categories which influence costs and/or revenues: macroeconomic conditions, and institutional characteristics.

The first category of determinants of FDI includes host-country factors associated with macroeconomic conditions. They include the market size and the potential of the market measured with GDP and GDP growth since they are associated with greater potential revenues. In a seminal paper on the determinants of FDI inflows, Schneider and Frey (1985) find a positive impact of GNP per capita for 80 developing countries. Chakrabarti (2001) tests the relevance of a range of macroeconomic determinants for FDI including market size measured by GDP per capita for a large cross-section of 135 countries. He concludes that market size is the only robust determinant of FDI with a positive impact.

Trade openness has been widely investigated as a potential determinant of FDI. There are conflicting views on this linkage. On the one hand, trade and FDI can be complements for exporting companies and greater trade openness favors a positive investment climate in line with the view from Grossman and Helpman (1991). On the other hand, trade and FDI are alternative ways of serving a foreign market and as such trade can be a substitute to FDI, leading to a detrimental impact of trade on FDI. Literature tends to support the positive relation between trade and FDI, with works like Liu, Wang and Wei (2001) for China or Egger and Pfaffermayr (2004) on OECD countries.

Natural resources have also been found to affect FDI but the literature is not conclusive. On the one hand, Gastanaga, Nugent and Pashamova (1998) observe that oil price for oil exporting countries exerts a negative impact on FDI in their work for 49 developing countries. On the other hand, Asiedu (2006) finds the opposing conclusion in a study on 22 African countries by pointing out that natural resources promote FDI.

Inflation can influence FDI inflows in the sense that low inflation is associated with reduced uncertainty in the economy and also preserves the real value of earnings in local

currency for foreign investors. In accordance with these hypotheses, Coskun (2001) for Turkey and Buckley et al. (2007) for China find empirical support for the detrimental role of inflation on FDI.

The second category of works includes studies testing institutional determinants of FDI. Given the topic of our research, these works are of particular interest for this investigation.

A first strand of this literature deals with the impact of democracy on FDI. Evidence is rather supportive of a beneficial effect of democracy. Jensen (2003) finds robust evidence that democratic institutions foster FDI on a sample of more than 100 countries. Using data for 83 developing countries, Busse and Hefeker (2007) show that basic democratic rights are positive for FDI inflows in an investigation. In a study using 14 OECD countries and 24 emerging countries, Guerin and Manzocchi (2009) find evidence for the attractive power of democracy for FDI inflows and additionally show that parliamentary democracies attract more FDI than presidential democracies. Lacroix, Méon and Sekkat (2018) analyze how democratic transitions influence FDI inflows. With a sample of 115 developing countries from 1970 to 2014, they do not find on average any relation between a democratic transition and FDI inflows. However they observe that consolidated democratic transitions, which are those that do not go into reverse for at least five years, enhance FDI inflows with the greater increase taking place ten years after the transition.

Asiedu and Lien (2011) extend this question by checking if this relationship is influenced by the share of natural resources in exports on a sample of 112 developing countries. They conclude that democracy only favors FDI if the share of natural resources in exports is below a certain threshold. Therefore, the beneficial impact of democracy may not be unconditional.

Wisniewski and Pathan (2014) provide a complementary analysis for the beneficial impact of democracy through an analysis of political factors characterizing 33 OECD democracies. They find positive support for a long tradition of democracy and observe that left-wing executives are more attractive than right-wing executives for FDI inflows.

The analysis of the impact of democracy on FDI has been complemented by several works looking at democratic liberties. Harms and Ursprung (2002) examine whether political and civil repression exerts an influence on FDI on a sample of 62 developing

countries in line with the hypothesis that multinational companies would be attracted by countries without liberties. They do not support this hypothesis by observing a negative influence of political and civil repression on FDI.

Adam and Filippaios (2007) extend this investigation by considering separately civil liberties and political liberties. They point out that repression of civil liberties can give incentives to foreign investors while repression of political liberties has the opposite effect. They find support for this hypothesis on a dataset of FDI from US firms to 105 developing and developed countries.

Finally, the protection of property rights has been studied in line with the view that foreign investors should be particularly sensitive to this dimension. Busse and Hefeker (2007) provide a broad investigation of the relation between institutions and FDI for a sample of 83 developing countries. They show that law enforcement is detrimental to corruption. Akhtaruzzaman, Berg and Hajzler (2017) propose a comparative analysis of the dimensions of institutional quality on FDI for 83 developing countries. They find strong support to the larger impact of expropriation risk than other institutional characteristics like government stability, political accountability, or corruption.

Some rare works examine variations in FDI flows within dictatorships. Broadly speaking, this literature has focused either on the impact of formal institutions or on dictators' time horizons, with the idea that inward FDI increases either when dictators are constrained by strong institutions, or when they expect long-term benefits from investment and are incited to limit taxation and protect private property. Regarding time horizons, Moon (2015) finds evidence that autocrats with a higher probability of staying in power attract more FDI. Bak (2016) finds that FDI inflows in autocracies follow a political cycle: they reach their lowest point in the early years of the dictator's tenure, then increase over time and eventually decrease again as the autocrat's tenure approaches the end. This is consistent with the results of earlier works finding that dictators' likelihood to expropriate foreign investment decreases throughout their tenure (Li, 2009) and that dictators' tenure is also correlated with better protection of property rights (Clague et al., 1996). Likewise, Fails (2014) finds a positive relationship between risk of leader replacement and political risk (measured by data from the political risk insurance industry).

The evidence regarding authoritarian institutions is more mixed. Bastiaens (2016) finds that signatories of bilateral investment treaties attract more FDIs when they allow for some degree of political participation. However, Gehlbach and Keefer (2012) find that

institutionalized ruling parties with the ability to select leaders as well as competitively elected legislatures have no impact on FDI inflows, although they are significant predictors of expropriation risk and domestic investment. One subsequent study by Wright and Zhu (2018) even finds that power concentration is attractive for fixed asset investors. More indirect evidence on expropriation risk confirms these findings: Jensen, Malesky and Weymouth (2014) find that the existence of multiparty legislatures is not sufficient to guarantee property rights protection and prevent nationalizations. Wilson and Wright (2017) use data on nationalization in the oil sector and find that expropriation is less likely in non-personalist dictatorships with legislatures; the existence of a legislature has no effect on expropriation risk in personalist regimes.

2.2 Economic impact of leaders' profiles

There is growing evidence that decision-makers' profiles influence their policy choices—and, in turn, their macroeconomic performance—even when their power is limited.

Using data from 197 countries on the period between 1848 and 2004, Besley, Montalvo and Reynal-Querol (2011) find that college-educated leaders produce higher growth rates. Relatedly, Congleton and Zhang (2013) compare growth rates under 41 US presidents, and uncover a significant effect of their educational attainment and prior political experience. Both studies assign this effect to educated leaders' greater ability to identify sensible economic policy choices. Dreher et al. (2009) find that political leaders with prior business experience and former economists are more likely to implement market-liberalizing reforms.

In addition to their skills, Hayo and Neumeier (2016) show that leaders' educational and professional background also affects their policy preferences. Using data on OECD countries, they conclude that leaders who held blue-collar jobs prior to pursuing their political career produce larger public deficits. Neumeier (2018) focuses on the professional experience by assessing the economic performance of US state governors who were businesspersons before entering politics. He finds that governors with a business background have a beneficial impact on the economic performance since their tenures are associated with higher economic growth and lower unemployment.

Smaller-scale studies on specific sectoral policies broadly confirm these conclusions. Göhlmann and Vaubel (2007) compare inflation rates from 10 European countries (1973-

1998), the Euro area and the US, and find that they in part depend on central bankers' background, former members of the central bank staff bringing about the lowest inflation rates. Several studies on German federal states arrive at similar conclusions: prime ministers stemming from a working-class family tend to spend more on social welfare, education and security (Hayo and Neumeier, 2012) and to produce larger deficits (Hayo and Neumeier, 2014). Conversely, public deficits are lower when the finance minister has gained finance expertise through prior positions in the financial business sector or in academia (Joachimsen and Thomasius, 2014). Economic expertise also has its drawbacks: a study on Swiss finance ministers shows that trained economists are more likely to manipulate financial reports in order to conceal budget surpluses (Clémenceau and Soguel, 2016).

Most of these works either exclusively focus on democracies or do not distinguish political regimes (an exception being Besley, Montalvo and Reynal-Querol, 2011), making it hence difficult to generalize these findings. It is indeed conceivable that some personal traits lead to different outcomes according to regime type: for example, longer tenures are associated with better economic outcomes in democracies (Moessinger, 2014), but the opposite holds true for dictatorships (Papaioannou and van Zanden, 2015). In some other cases, effects are similar: the aging of decision-makers has been found to adversely impact economic development in democracies (Atella and Carbonari, 2017) and in dictatorships (Jong-A-Pin and Mierau, 2011).

Our paper therefore extends this literature by analyzing whether leaders' personal traits influence macroeconomic performance through the expectations of investors next to the investigated channel of their preferences and policy choices in dictatorships.

3. International investment decision under dictatorship

As suggested by growing literature (e.g. Boutchkova et al., 2012, Brogaard and Detzel, 2015), investment decision and returns are affected by political uncertainty. Available evidence also shows that FDI is highly sensitive to monetary, tax and regulatory policies (Gastanaga et al., 1998; Baccini, Li and Mirkina, 2014) and that uncertainty about future public policies can deter investment even in relatively stable environments (Julio and Yook, 2016). This pattern should be particularly pronounced in authoritarian regimes, in

which the leader has leeway to enact reforms with adverse consequences for the host country's economy.

Following Pastor and Veronesi (2012, 2013), we can assume that political uncertainty is driven by two components. First, the policy uncertainty is connected to the uncertainty around the type of policy which is going to be implemented by the government. Second, the policy impact uncertainty corresponds to the uncertain consequences of the implemented policies on the investment return. Both these types of uncertainty form the political risk the investor faces. Most of theoretical and empirical analyses rest on a democratic framework, although there are large differences in investment decision between democracy and dictatorship

From investors' perspective, economic and political environments deeply diverge between democratic and dictatorial regimes. In democracies, political risk is alleviated by institutions that protect property rights such as constitution or rule of law. Furthermore, leadership selection through elections and electoral accountability constitute a first protection against extremist rulers and arbitrary policy choices. By contrast, dictatorship is to some extent the reign of discretion. Even if there are variations in discretionary power among dictatorships, the scope of potential public policy decisions is broader than in democracies. For example, China's growth rate is estimated at -28% for the year 1961, shortly before Mao put an end to the Great leap forward. Ne Win's "Burmese way to socialism" similarly ruined Myanmar. Ne Win is also infamous for the demonetization of several banknotes denominations without the possibility of conversion – a step he apparently took partly to curb inflation, and partly because his astrologer advised him to release new denominations whose numerals add up to nine (Maung, 1990).

Put differently, policy uncertainty is greater in dictatorship than in democracy, while we can assume that policy impact uncertainty does not depend on the political regime. As a result, political uncertainty and risk are greater in dictatorship than in democracy. From an empirical perspective, variations in economic performance are greater within autocracies than within democracies (Weede, 1996; Almeida and Ferreira, 2002).

Facing this political risk, international investors must anticipate dictators' decisions in order to assess the expected profitability of their investment. Investors know that dictators try to maximize their rent extracted from the national economy. This rent serves as a way of both being richer and keeping power by distributing a share of this rent to their supporters or coopting opponents (Wintrobe, 1990, 1998). On the other side, extracting excessive rent from the economy has a negative impact on the economy and finally on the

amount of rent captured by the dictator (Olson, 1993; Wintrobe, 1990, 1998). Dictators therefore have to choose the optimal amount of rent extorted from the economy in order to maximize their wealth and their probability of survival without depleting available resources.

International investors are aware of the underlying logic of the decision-making process but do not know the final decision made by despotic leaders. To anticipate this decision, they can only use public information[1] and three kinds of information are available.

First, they can examine the dictator's past behavior and decisions to predict his future choices. By evaluating past decisions and by using adaptive anticipations, investors have a first insight about the economic choices made by the dictator. The limitation of this source of information is that many dictators have short tenures and their rule is often not long enough to draw inferences from past to future decisions.

Second, the formal institutions of the regime may provide indications on the extent of the leader's discretionary power. However, authoritarian institutions widely vary in their constraining power and not all of them are effective safeguards against expropriation (see Wright 2008; Gehlbach and Keefer 2012; Jensen, Malesky and Weymouth, 2014).

Third, investors may examine the dictator himself: by observing the leader's personal characteristics, background and pathway to power, they can gain a first insight about his future economic choices. This type of information has several advantages: first, this is readily available information, which can be accessed without deep knowledge of the country's institutional environment; second, the information is more reliable than public promises and discourses; and third, the leader's traits are likely to be good predictors of his future behavior if power is heavily concentrated.

We therefore put forward a first, general hypothesis which states an existing relationship between FDI flows and leaders' characteristics.

H1: Dictators' personal characteristics have an impact on FDI inflows.

More specifically, we expect that FDI inflows will be driven by personal characteristics that are related to either leaders' expected tenure length or their knowledge of the economy.

[1] We exclude the possibility that international investors hold private information because then they become supporters or partners of the dictator. Therefore, their purpose is no longer to anticipate the political risk of the investment but to participate to the rent extraction.

Regarding leaders' expected tenure length, we follow prior research and assume that dictators' incentives to expropriate will decrease as their time horizons increase (Olson, 1993). The dictator has no incentive to invest in long-term economic development if he expects his tenure to be short. This is why dictators who are secure in office tend to invest more on growth-enhancing policies or institutions (Clague et al., 1996; Wright, 2008; Li, 2009; Jong-A-Pin and Mierau 2011).[2]

Dictators' discount rates (and, in turn, expropriation risk) are difficult to observe directly, but two characteristics of leaders constitute good approximations of their expected tenure length. The first one is the length of their political experience prior to entering office: all else being equal, career politicians (e.g., Hu Jintao in China) probably have longer time horizons than complete outsiders (e.g., Samuel Doe in Liberia) because they can rely on an established network to consolidate their power. These individuals may also expect continued political activities after leaving office. Second, older dictators are more likely to engage in rent-extraction, simply because they face a higher mortality risk (Jong-A-Pin and Mierau, 2011). We thus expect dictators' age to correlate negatively with FDI inflows, and their prior political experience to enhance FDI, because international investors should be sensitive to these leader's characteristics.[3]

H2a: Aging dictators attract less FDI inflows.

H2b: Dictators with prior political experience attract more FDI inflows.

There is another central characteristic of leaders – namely their (expected) ability to identify and implement sensible economic policy choices – that may also affect investors' decisions. Expropriation risk and policy risk are probably not quite independent from each other,[4] but even leaders whose position was relatively secure have made disastrous policy choices for ideological reasons or out of sheer ignorance. For example, China's

[2] Note that short expected tenures can deter investment for reasons other than their impact on the dictator's behavior: investors may simply want to avoid policy reversals following leadership transitions (Fails, 2014).

[3] A more obvious indicator of leaders' expected tenure length is their actual longevity in power, which has been shown to correlate positively with FDI (Li, 2009). This indicator cannot be used here: first, investors do not have access to this information when the leader just came to power. Second, as the leader's past years in power add up, investors update their beliefs about his expected tenure length but also gain more information about his economic policy choices, which can either encourage or deter investment.

[4] For example, it is possible that economic failures lead to regime instability. Conversely, political instability might bring less competent leaders to power (see Besley, Montalvo and Reynal-Querol, 2011) The literature also suggests that leaders who fear for their seat are more likely to be surrounded by incompetent advisors (Zakharov, 2016).

growth rate is estimated at -28% for the year 1961, shortly before Mao put an end to the Great leap forward. Ne Win's "Burmese way to socialism" similarly ruined Myanmar. Ne Win is also infamous for the demonetization of several banknotes denominations without the possibility of conversion – a step he apparently took partly to curb inflation, and partly because his astrologer advised him to release new denominations whose numerals add up to nine (Maung, 1990).

Formal educational attainment is public information that can inform potential investors about the dictator's future public policies. Investors can expect more educated dictators to adopt more balanced decisions which could be embodied in more pro-business policies. Generally, educated leaders may take more informed decisions or accept more rational advice about their policies: Besley, Montalvo and Reynal-Querol (2011) and Congleton and Zhang (2013) have shown that college-educated leaders produce higher growth rates. Both studies assign this effect to educated leaders' greater ability to identify sensible economic policy choices. So, we are able to state a new hypothesis as follows:

H3: More educated dictators attract more FDI flows.

And lastly, among dictator characteristics readily available, those related to economy are the most relevant. In particular, we assume that leader knowledge of economy might provide an element of forecasting future decision. Basically, the leader's economic knowledge has two sources. First, prior business experience is a good indicator of future decisions of dictators for international investors. Second, having education in economics may influence the policies of the dictator. These expectations are in line with earlier works showing that former businesspersons are more likely to implement market-liberalizing reforms (Dreher et al., 2009) and generate more growth, less unemployment (Neumeier, 2018) and lower public deficits (Joachimsen and Thomasius, 2014). Education in economics also improve decision-makers' macroeconomic performance according to some of these studies (Dreher et al., 2009; Joachimsen and Thomasius, 2014). So, our two last hypotheses are related to the leader's background in economics and can be stated as :

H4a: Dictators with education in economics attract more FDI flows

H4b: Dictators with prior business experience attract more FDI flows

4. Empirical methodology

To test our hypotheses, we implement econometric study of national FDI flows at macroeconomic level for dictatorships.

4.1 Data description

The analysis focuses on authoritarian regimes—which we identify using Cheibub, Gandhi and Vreeland's (2010) dichotomous democracy measure—and spans the period from 1973 to 2008. The unit of analysis is the country-year; however, we exclude all years during which a change of leadership has taken place. The resulting dataset includes 1,570 observations (207 leaders) spread over 100 countries. Table 1 reports the descriptive statistics for the key variables.

Our dependent variable[5] is drawn from the World Development Indicators (World Bank, 2016) and is defined as net foreign direct investment inflows expressed as a percentage of the GDP. In our sample, FDI inflows represent on average 2.83 percent of the national GDP.

To measure the independent variables, we rely on three datasets on political leaders (Goemans et al. 2009; Ellis et al. 2015; Baturo 2016).

First, we consider the dictator's age (*Age*) and the length of his experience in politics prior to entering office (*Political experience*) which are both continuous variables measured in years. According to hypotheses H2a and H2b, we expect that the first one has a negative impact and the second one a positive impact on FDI flows. The mean age of leaders is about 58 while they have on average a political experience of 11.63 years.

Second, we use a set of four dummy variables indicating the level of education of the leader in office. *Primary*, *Secondary*, *Undergraduate*, and *Graduate* are respectively equal to one if the leader has reached primary, secondary, undergraduate and graduate education and to zero otherwise. *Primary* is our reference in the estimations. According to hypothesis H3, we expect an increasing impact of education levels on FDI flows. As shown in Table 1, 42% of leaders have undergraduate education while 33% have graduate education.

[5] See Appendix A for the description of the variables and their sources.

Third, we utilize *Education in economics*, which is a dummy variable equal to one if the leader has received education in economics or management and to zero otherwise, and *Business experience*, which is a dummy variable equal to one if the leader has prior experience in business. According to hypotheses H4a and H4b, we expect a positive impact of these variables on FDI flows. Since there is correlation between both variables, we create interaction variables between them so that we can consider the four possibilities which can occur. We then obtain an interactive variable that can take on four possible values: "No business experience and no study in economics", "Business experience and no study in economics", "No prior business experience and study in economics", "Business experience and study in economics". The first one is our reference in the estimations. We point out that 9% of leaders have studied economics or management, while 7% of leaders have prior experience in business.

We control for several economic and institutional factors. These variables are listed in Appendix A along with their sources and exact definitions.

We consider six economic factors in line with the literature. We first introduce *GDP per capita*, defined as GDP per capita in 1,000 USD constant 2010. In line with Chakrabarti (2001), we expect a positive impact. We also include the annual rate of CPI to control for inflation (*Inflation*). We assume that inflation exerts a negative influence on FDI in line with Buckley et al. (2007). Openness to trade is also taken into account with the share of trade in percentage of GDP (*Trade*). A positive relation between trade and FDI is expected following former works like Liu, Wang and Wei (2001) and Egger and Pfaffermayr (2004). Government size is also controlled with the share of government expenditures in the GDP (*Government expenditures*). On the one hand, greater government size can be associated with more investment in public infrastructure which attracts FDI. On the other hand, it can also be associated with greater taxation which deters FDI. We capture the influence of natural resources exploitation on FDI with the share of natural resources rents in GDP (*Resource rents*). Mixed evidence on this variable leads us not to predict a positive or negative influence. Finally, we control for the market size with total population (*Population*). We then expect a positive relation with FDI.

As institutional variables, we introduce four factors in the specification. First, a dummy variable indicates the occurrence during the year of intrastate conflict (*Intrastate conflict*), following earlier work indicating that domestic political violence has a negative impact on inward FDI (Braithwaite, Kucik and Maves 2014; Barry 2018). This variable takes into account the worst political risk for the investor. Obviously, the expected sign of

the associated coefficient is negative. Second, the type of dictatorship is captured by a set of three dummy variables: *Civilian dictatorship, Military dictatorship* and *Monarchy*, which are respectively equal to one if the dictatorship is a civilian one, a military one, or a monarchy, and zero otherwise. *Civilian dictatorship* is our reference in the estimations We take into account the type of dictatorship to make sure that the results are not driven by military dictators, which are unlikely to have education in economics or business experience and may deter investment for reasons unrelated to their background.[6] Monarchies on the other hand may foster investment through greater stability (Hadenius and Teorell 2007) and better property rights protection (Knutsen and Fjelde 2013). The third institutional variable is a dummy variable indicating if the regime is a communist or radical left-wing regime (*Communist / radical left*). Lastly, we control for checks on the executive using the Freedom House political rights index (*Political rights*), since we adopt a broad definition of authoritarian regimes that may include some false positives (see Cheibub et al. 2010). Furthermore, political rights have been found to enhance investment (Harms and Ursprung 2002; Adam and Filipaios 2007). Following the previous literature which jointly considers democracies and dictatorships, we expect a negative[7] sign for the coefficient.

4.2 Econometric strategy

Our empirical model can be defined as follows

$$FDI_{i,t} = \alpha_E ECO_{i,t} + \alpha_I INSTI_{i,t} + \alpha_D DICTA_{i,t} + \beta_i + \gamma_t + \varepsilon_{i,t}$$

where *FDI* defined as the FDI inflows in proportion of GDP for a country *i* at time t is explained by economic factors ($ECO_{i,t}$), institutional factors ($INSTI_{i,t}$) and the characteristics of the dictator ($DICTA_{i,t}$). β_i is the unobserved national specific effects and γ_t are the dummy variables for years. We assume that $\varepsilon_{i,t}$, the error term, is i.i.d.

Given the great variation of FDI in dictatorship, we decide not to introduce dynamics in our specification. In particular, we do not introduce a lagged variable of FDI, because we do not have any theoretical reason to do so. Indeed, we have no reason to think that economic conditions or institutional characteristics or dictator characteristics in *t-1* period have an impact on the FDI at *t* period. Furthermore, the introduction of lagged variable

[6] Military dictatorships typically have short lifespans and experience more coups d'état than any other type of dictatorship (Hadenius and Teorell 2007; Geddes et al. 2014). Archigos data also indicate that military leaders have a greater probability of exiting office in an irregular way.

[7] Higher values on the index indicate poor protection of political rights.

leads to econometric concerns since it is correlated to the fixed effects (Nickell 1981). The resolution of this bias rests on dynamics model which contains lagged variables of explanatory variable. Such a model would eliminate lots of observations from the sample since many dictators have short tenures. Therefore, we carry out fixed effects estimator to estimate the coefficients instead of dynamic model. Similarly, we prefer fixed effects which are related to the country, not to the dictator, rather than random effects. In our robustness checks, we propose alternative methods and models.

5. Main estimations

We first report results regarding the effect of the leader's education and background in economics. These results are displayed in Table 2. In order to handle potential multicollinearity issues between the explanatory variables, we provide six specifications. In the first one (model 1), we do not include the characteristics of the leader in order to check the stability of the control variables compared to the other specifications. In the four following models (models 2 to 5), we introduce successively each of the four following characteristics: age, political experience, educational attainment, and interactions between education in economics and prior experience in business. In model 6, we introduce in the specification all characteristics together.

Several conclusions emerge. First, we observe that age and political experience prior to entering office of the leader have no influence on FDI inflows. *Age* and *Political experience* are not significant in all estimations. We therefore reject hypotheses H2a and H2b

Second, we find that greater educational attainment of the leader is associated with higher FDI inflows. The analysis of the variables for the level of education shows that *Secondary, Undergraduate* and *Graduate* are significantly positive in all estimations (with one exception for *Secondary* regarding significance). Moreover, we observe that the impact increases with the level of education, with a greater coefficient for *Graduate*. Compared to primary education, a country ruled by a dictator with graduate education receives more FDI than a country ruled by a dictator with undergraduate studies. If we consider for instance the specification in model 4, the effect magnitude on FDI proportion is 4 points of percentage when the leader has undergraduate education and 5.5 points

when he has graduate education. This result confirms our hypothesis H3.

Third, we find no evidence that prior experience in business is positively valued by foreign investors and limited evidence that education in economics is attractive for foreign investors. We only find one interactive variable combining business experience and education in economics which is significantly positive: *No prior business experience and study in economics* in model 6. For the rest, the interactive variables including prior experience in business are all not significant. As a result, we find some support to hypothesis H4a but no support for hypothesis H4b.

These estimations therefore provide some support to the key hypothesis H1 that dictators' characteristics exert an impact on FDI flows. We conclude that education level and education in economics of the leader exert an influence on foreign investors by providing them information about the future policy choices of the leader.

We turn to the analysis of the control variables. Among macroeconomic variables, we observe a positive and significant influence of trade which accords with the findings of Liu, Wang and Wei (2001) and Egger and Pfaffermayr (2004) about the complementarity between trade and FDI. Inflation has a significantly negative impact on FDI flows in line with Coskun (2001) and Buckley et al. (2007) confirming the detrimental influence of inflation on FDI. We point out a negative influence of GDP per capita on FDI flows which diverges from former works like Chakrabarti (2001). We additionally observe a negative impact of population which can also be interpreted as an indicator that greater market size is associated with lower FDI flows. These findings are rather at odds with previous literature. However the fact that our sample is restricted to dictatorships can explain such different finding with works considering all types of political regimes. Finally neither government size, nor the share of natural resources in GDP has a significant relation with FDI flows.

Institutional variables are overall not significant. Again this difference with former literature can result from the fact that our sample is only composed of dictatorships while previous studies use samples mixing democracies and dictatorships. As discussed above, the protection of rights has no significant impact of FDI toward a dictatorship. We also observe that the communist nature of the regime has no significant impact on FDI share. Finally, the lack of significance for the variables associated with the type of dictatorship show that investors do not make differences between types of dictatorships when taking FDI decisions.

Intrastate conflicts have no impact on FDI. This surprising result could be due to the fact that we removed years of leadership change from the sample: we thus automatically excluded years during which a leader was overthrown by a civil war (i.e., the most severe cases of conflict). Relatedly, our measure of intrastate conflicts includes not only civil wars fought over government but also some low-intensity insurgencies as well as secessionist conflicts that affect only a limited portion of the state territory. Given their features, these types of conflict do not affect FDI.

6. Additional estimations

In this section we perform additional estimations to check the relevance of our findings. We first check whether the influence of the education and background of leaders is similar in democracies (6.1). We then check whether our results are sensitive to the estimation method and the selection of cases (6.2). Finally, we investigate the issue of reverse causality (6.3).

6.1 A comparison: the impact of leader characteristics on FDI in democracies

To dig deeper the relevance of our interpretation of the main findings, we can wonder whether the same results are observed in democracies. If this is the case, then our view that leaders' education is particularly important to attract FDI in dictatorships because of the discretionary decisions taking place in these regimes would not be correct. In other words, applying the same model for democratic nations offers a kind of counterfactual analysis.

Table 3 displays the estimations for democracies. We have redone two specifications of the baseline estimations for dictatorships: the model with only control variables, and the model with all leaders' characteristics. We observe that leaders' education does not affect FDI inflows the same way in democracies as in dictatorships. While educational attainment has a consistent and positive impact on FDI inflows in dictatorship with greater level of education associated with a greater impact, it does not have such consistent impact in democracies. *Secondary*, *Undergraduate* and *Graduate* are all significantly positive but *Secondary* has the greatest coefficient. Hence, the results for democracies tend to show that foreign investors prefer leaders with secondary education

while greater level of education is positively valued in dictatorships.

Education in economics and prior business experience of leaders do not influence FDI inflows in democracies. Variables combining both traits never reach significance in any of the estimations. It therefore appears that education in economics does not play the same role in democracies than in for dictatorships.

Regarding the remainder of the independent variables, we observe that the age of the leader has no impact for democracies as it was the case for dictatorships. An additional difference between democracies and dictatorships concerns the influence of the political experience before entering office: it has a significantly negative impact in democracies while it was not significant in dictatorships. In other words, foreign investors would consider career politicians as less attractive in democracies while they do not care about political experience in dictatorships.

Thus, these results support the view that leaders' education exerts a greater influence to attract FDI inflows in dictatorships. They corroborate our interpretation that leaders' education is a signal of particular importance for foreign investors in dictatorships because of the discretionary decisions associated with these regimes.

6.2 Robustness checks

We check the robustness of our results in different ways. The results of the robustness tests are displayed in Tables 4 and 5. For all tests we redo the baseline model including all variables for leaders' characteristics. The first column of Table 4 reproduces the baseline estimation as it was shown in the last column of Table 2.

First, we include the lag of the explained variable, FDI, in the set of explaining variables. We observe the same findings with greater educational attainment associated with greater FDI inflows, no impact of age, political experience, and previous business experience, and limited evidence in favor of the positive influence of education in economics.

Second, we exclude year fixed effects from the estimations. Again, we overall find similar results with one exception: we now observe some support for the positive impact of previous business experience and greater support for the influence of education in economics. Namely, we have significantly positive coefficients for *Business experience and no study in economics*, *No prior business experience and study in economics*, and

Business experience and study in economics. Thus, this estimation shows that educational attainment of the leader is still beneficial for FDI inflows, while previous business experience and study in economics exert a significantly positive impact on FDI inflows.

Third, we include a time trend rather than year fixed effects in the estimations. We can then account for the influence of a possible trend influencing FDI flows. We again confirm the positive relationship between level of education and FDI inflows, and we find again evidence for the impact of previous business experience and study in economics. Indeed we now have significantly positive coefficients for *Business experience and no study in economics,* and *No prior business experience and study in economics,* while *Business experience and study in economics* is not significant.

Fourth, we perform the estimations with country random effects rather than country fixed effects. We obtain results which slightly differ from the baseline estimation. For level of education, we find a significantly positive coefficient for *Graduate* while *Secondary* and *Undergraduate* are not significant anymore. Hence, we still have evidence that greater education of the leader is positively related to FDI inflows. For previous business experience, we have limited evidence of its positive influence, while nothing is significant for study in economics.

Fifth, we exclude China from the sample. Since China is a particular case attracting a high volume of FDI inflows, one can wonder if our findings are preserved when we exclude this country. We confirm the main findings. On the one hand, we still show that greater educational attainment is associated with greater FDI inflows. All three education level variables are significantly positive but *Graduate* has the highest coefficient. On the other hand, we still find no support for the impact of age, political experience, and previous business experience, and limited support for the positive impact of study in economics on FDI inflows.

Sixth, we exclude Communist regimes from the sample. These countries have particular characteristics which can drive the findings: on the one hand, education in economics may not have the same content in Communist countries; on the other hand, leaders of these regimes are more constrained by the ruling party and by the state ideology, which give them less leeway in economic policies and hence make their own characteristics less relevant. We therefore follow former works testing the exclusion of these countries (e.g., Papaioannou and Siourounis, 2008). We find the same main results. The only exception with the baseline estimation is stronger support for the impact of study in economics.

Namely we now have both interactive variables with study in economic (*No prior business experience and study in economics* and *Business experience and study in economics*) which are significantly positive.

Seven, we exclude countries for which we have a small number of observations. We test alternatively four exclusions all displayed in the table: countries with only 1 year, 2 years or less, 3 years or less, and 4 years or less. These changes in the sample of countries do not affect the main conclusions. We again find that greater educational attainment is associated with greater FDI inflows: *Undergraduate* and *Graduate* are always significantly positive with a greater coefficient for *Graduate*. We again obtain some evidence for the impact of study in economics but no support for the impact of age, political experience, and prior business experience.

Our main results have thus been confirmed by several robustness tests, leading to findings that support the view that leaders' education has an impact on FDI inflows.

6.3 Reverse causality

We can question the reverse causality in our analysis: we investigate how leaders' characteristics can exert an influence on FDI flows but one can argue that FDI flows can contribute to leaders' characteristics. There are several reported cases of foreign-imposed dictators (e.g., Congo's Denis Sassou Nguesso), with the possibility that these interventions have been at least partly motivated by foreign investors' interests (Dube, Kaplan and Naidu, 2011).

From a theoretical perspective, the reverse causality is questionable. Foreign investors may influence the choice of leaders, but it is unclear why they would choose educated leaders or leaders with a business experience: they have incentives to choose leaders associated with their interests in a direct way, not leaders with characteristics that might be associated with their interests.

Nonetheless, one can still consider that reverse causality can occur in case foreign investors are willing to have a more educated leader (or a leader with education in economics and business experience) because they expect these leaders to bring them higher returns. If this assumption is correct, we should observe higher educational levels and a higher frequency of education in economics and/or business experience among foreign-imposed leaders. Table 6 compares the characteristics of foreign-imposed and other leaders. We note firstly that foreign-imposed leaders correspond to a tiny number of

our observations: 20 on a total of 1,269. This preliminary observation suggests that foreign investors do not play a major influence in the selection of leaders' characteristics in general. We also observe that foreign-imposed leaders have lower education than the others: 5% of them have graduate education and 30% undergraduate education to be compared with respectively 29.3% and 45.8% for the others. Finally, none of the foreign-imposed leaders has either business experience or a background in economics.
Thus, we find out that the characteristics of dictators which influence FDI flows are not related to foreign intervention in their appointment. The theoretical argument about a possible reverse causality is consequently not empirically founded.

7. Conclusion

In this paper, we investigate whether dictators' characteristics exert an impact on FDI inflows. Political risk is a key obstacle to FDI leading foreign investors to scrutinize any information on the host country before implementing investment decisions. As a consequence, we test the hypothesis that dictators' characteristics influence FDI inflows because foreign investors view them as a signal of awareness of leaders for the economic benefits of FDI.

Our main conclusion is that educated dictators are more attractive to foreign investors. We find strong evidence that greater educational attainment of the leader promotes FDI. We also obtain evidence that education in economics contribute to enhancing FDI. Several robustness checks support these results. By contrast, we do not find evidence that age, prior political experience and business experience influence FDI flows. This finding therefore shows the key importance of education among the traits of leaders in influencing FDI. We furthermore do not observe the same conclusions for the relationship between leaders' education and FDI in democracies, which corroborates our hypothesis that leaders' education is a valuable signal for foreign investors in dictatorships only.

The results of the paper help understanding what shapes FDI inflows in dictatorships by showing the role of leaders' characteristics. Next to the macroeconomic factors and the institutional framework of the host country, the educational background of the dictator is scrutinized by foreign investors. Leaders' education profiles can therefore affect

macroeconomic performance of a country not through their influence on their policy choices but through their impact on the expectations of foreign investors.

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Table 1: Summary statistics on main variables

	Mean	Std. dev.	Observations
H2a: Age	57.67	11.65	1,451
H2b: Political experience	11.63	11.69	1,425
H3: Education level:			
primary	0.05	0.22	1,414
secondary	0.20	0.40	1,414
undergraduate	0.42	0.49	1,414
graduate	0.33	0.47	1,414
H4a: Study in economics (y/n)	0.09	0.28	1,451
H4b: Business experience (y/n)	0.07	0.26	1,451
Inward FDI (% GDP)	2.83	7.05	1,451

Notes: we provide the statistics for the period 1973-2008.

Table 2: Baseline estimations in dictatorships

	(1) Coef (se)	(2) Coef (se)	(3) Coef (se)	(4) Coef (se)	(5) Coef (se)	(6) Coef (se)
Age		-0.0038				0.0051
		(0.024)				(0.027)
Political experience			0.011			0.025
			(0.028)			(0.028)
Leader's education (primary as reference):						
Secondary				3.78		4.18*
				(2.46)		(2.42)
Undergraduate				4.01**		4.11**
				(1.97)		(1.90)
Graduate				5.52***		5.81***
				(1.62)		(1.55)
No business experience and no study in economics						ref
Business experience and no study in economics					0.64	1.27
					(0.71)	(0.78)
No prior business experience and study in economics					-0.81	1.25**
					(1.14)	(0.50)
Business experience and study in economics					2.23	2.54
					(1.42)	(1.57)
GDP per capita	-0.22	-0.22	-0.22	-0.24	-0.26*	-0.29**
	(0.15)	(0.15)	(0.15)	(0.15)	(0.14)	(0.14)
Inflation	-0.00014*	-0.00013*	-0.00014*	-0.00015*	-0.00013*	-0.00015*
	(0.000074)	(0.000077)	(0.000080)	(0.000076)	(0.000072)	(0.000078)
Trade	0.12**	0.12**	0.12**	0.12**	0.12***	0.12***
	(0.047)	(0.047)	(0.047)	(0.047)	(0.046)	(0.046)
Government expenditures	0.062	0.062	0.071	0.066	0.060	0.064
	(0.086)	(0.086)	(0.088)	(0.090)	(0.085)	(0.089)
Resources rents	-0.0097	-0.0094	-0.012	-0.013	-0.0086	-0.015
	(0.069)	(0.070)	(0.073)	(0.073)	(0.069)	(0.075)
Population	-0.032*	-0.033*	-0.033*	-0.038**	-0.033*	-0.041**
	(0.018)	(0.018)	(0.020)	(0.018)	(0.019)	(0.020)
Dictatorship type (civilian as reference):						
Military dictatorship	1.22	1.20	1.38	1.84	1.41	2.32
	(1.23)	(1.21)	(1.48)	(1.38)	(1.23)	(1.46)
Monarchy	-3.01	-3.13	-2.96	-1.44	-2.94	-0.95
	(2.08)	(2.18)	(2.09)	(2.03)	(2.05)	(2.08)
Intrastate conflict	0.67	0.66*	0.67	0.55	0.63	0.48
	(0.41)	(0.40)	(0.43)	(0.42)	(0.39)	(0.37)
Communist / radical left	0.49	0.45	-0.093	0.033	0.80	0.18
	(1.81)	(1.81)	(2.43)	(2.45)	(1.99)	(2.48)
Political rights	-0.14	-0.15	-0.17	-0.12	-0.15	-0.12
	(0.21)	(0.21)	(0.22)	(0.22)	(0.21)	(0.23)
Constant	-5.45*	-5.19	-5.57*	-10.3***	-5.40*	-11.3**
	(2.99)	(3.63)	(3.29)	(3.57)	(2.97)	(4.35)
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
Observations	1,451	1,451	1,425	1,414	1,451	1,413
Adjusted R-squared	0.24	0.24	0.24	0.24	0.24	0.24

Notes: Standard errors in brackets are clustered by country.*, ** and *** mean respectively p<0.1, p<0.05 and p<0.01

Table 3: Estimations in democracies

	(1) Coef (se)	(2) Coef (se)
Age		0.025 (0.015)
Political experience		-0.042* (0.023)
Leader's education (primary as reference):		
Secondary		2.69** (1.06)
Undergraduate		1.56* (0.93)
Graduate		2.14** (0.95)
No business experience and no study in economics		ref
Business experience and no study in economics		-0.89 (0.56)
No prior business experience and study in economics		0.91 (1.62)
Business experience and study in economics		-0.38 (0.75)
GDP per capita	0.084 (0.13)	0.13 (0.12)
Inflation	-0.00057 (0.00088)	-0.00012 (0.00014)
Trade	0.32 (0.23)	0.045** (0.022)
Government expenditures	0.25 (0.26)	-0.022 (0.042)
Resources rents	-0.42 (0.29)	-0.19*** (0.072)
Population	-0.035 (0.024)	-0.013** (0.0051)
Intrastate conflict	1.96 (1.71)	0.66 (0.76)
Communist / radical left	-6.05 (5.84)	-2.08 (1.30)
Political rights	-0.62 (0.49)	-0.32* (0.17)
Constant	-22.2 (18.0)	-3.87 (2.49)
Country fixed effects	yes	yes
Year fixed effects	yes	yes
Observations	1,434	1,298
Adjusted R-squared	0.08	0.14

Notes: Standard errors in brackets are clustered by country.*, ** and *** mean respectively $p<0.1$, $p<0.05$ and $p<0.01$

Table 4: Robustness checks with alternative methods and specifications

	Baseline model Coef. (se)	With lagged variable Coef. (se)	Without year dummies Coef. (se)	With trend time Coef. (se)	Random effects Coef. (se)
Age	0.0051	0.0027	0.045	0.013	0.0010
	(0.027)	(0.025)	(0.031)	(0.027)	(0.023)
Political experience	0.025	0.027	-0.0056	0.029	0.0092
	(0.028)	(0.026)	(0.025)	(0.025)	(0.020)
Leader education level (primary as reference)					
Secondary	4.18*	4.83**	4.34	5.44**	1.16
	(2.42)	(2.37)	(2.72)	(2.62)	(1.28)
Undergraduate	4.11**	4.75**	4.42**	5.68**	1.63
	(1.90)	(1.88)	(2.20)	(2.39)	(1.23)
Graduate	5.81***	6.26***	6.11***	7.33***	2.45*
	(1.55)	(1.59)	(2.15)	(2.25)	(1.40)
No business experience and no study in economics	ref	ref	ref	ref	ref
Business experience and no study in economics	1.27	1.14	1.96***	1.36**	1.33*
	(0.78)	(0.75)	(0.62)	(0.66)	(0.79)
No prior business experience and study in economics	1.25**	0.83*	1.19***	2.36***	0.35
	(0.50)	(0.46)	(0.34)	(0.52)	(1.62)
Business experience and study in economics	2.54	2.50	3.24**	2.53	-0.099
	(1.57)	(1.56)	(1.50)	(1.65)	(1.07)
Lagged FDI (GDP %)		0.20			
		(0.13)			
GDP per capita	-0.29**	-0.23**	-0.18	-0.28**	-0.14
	(0.14)	(0.11)	(0.15)	(0.13)	(0.100)
Inflation	-0.00015*	-0.00011	-0.00014**	-0.00015***	-0.00016***
	(0.000078)	(0.000077)	(0.000058)	(0.000058)	(0.000058)
Trade	0.12***	0.12**	0.13***	0.12***	0.083**
	(0.046)	(0.052)	(0.047)	(0.047)	(0.034)
Government expenditures	0.064	0.041	-0.014	0.034	0.028
	(0.089)	(0.081)	(0.086)	(0.079)	(0.060)
Resources rents	-0.015	-0.056	-0.0030	-0.0081	0.050
	(0.075)	(0.078)	(0.067)	(0.071)	(0.039)
Population	-0.041**	-0.037*	-0.0017	-0.034*	0.0037**
	(0.020)	(0.020)	(0.014)	(0.018)	(0.0018)
Intrastate conflict	0.48	0.70*	0.85**	0.52	0.64
	(0.37)	(0.37)	(0.38)	(0.37)	(0.47)
Military dictatorship	2.32	2.49	2.17	2.42	1.95*
	(1.46)	(1.57)	(1.68)	(1.53)	(1.02)
Monarchy	-0.95	-0.86	1.00	0.69	0.077
	(2.08)	(2.15)	(1.49)	(1.53)	(1.04)
Communist / radical left	0.18	0.23	-0.35	-0.38	-0.62
	(2.48)	(2.33)	(2.80)	(2.42)	(0.94)
Political rights	-0.12	-0.19	0.0083	-0.022	-0.00067
	(0.23)	(0.21)	(0.27)	(0.25)	(0.16)
Time trend				0.11***	
				(0.038)	
Constant	-11.3**	-9.13*	-15.1**	-242.0***	-7.08*
	(4.35)	(4.70)	(6.44)	(78.8)	(3.93)
Country fixed effects	yes	yes	yes	yes	no
Year fixed effects	yes	yes	no	no	yes
Observations	1,413	1,277	1,413	1,413	1,413

Notes: Standard errors in brackets are clustered by country.*, ** and *** mean respectively p<0.1, p<0.05 and p<0.01

Table 5: Robustness checks with sample restrictions of dictatorships

	Without China	Without Communist regimes	Exclusion of countries with only one year	Exclusion of countries with two years or less	Exclusion of countries with three years or less	Exclusion of countries with four years or less
Age	0.0051	0.0058	0.0034	0.0051	0.0051	0.0057
	(0.027)	(0.029)	(0.029)	(0.027)	(0.027)	(0.027)
Political experience	0.025	0.024	0.023	0.025	0.026	0.023
	(0.028)	(0.026)	(0.027)	(0.028)	(0.028)	(0.027)
Leader education level (primary as reference)						
Secondary	4.18*	4.30*	4.11	4.18*	4.17*	4.41*
	(2.42)	(2.41)	(2.54)	(2.42)	(2.42)	(2.48)
Undergraduate	4.11**	4.20**	4.15**	4.11**	4.10**	4.37**
	(1.90)	(1.90)	(1.99)	(1.90)	(1.90)	(1.97)
Graduate	5.81***	5.84***	5.74***	5.81***	5.81***	5.95***
	(1.55)	(1.56)	(1.68)	(1.55)	(1.55)	(1.61)
No business experience and no study in economics	ref	ref	ref	ref	ref	ref
Business experience and no study in economics	1.27	1.28	1.18	1.27	1.27	1.29*
	(0.78)	(0.77)	(0.78)	(0.78)	(0.78)	(0.77)
No prior business experience and study in economics	1.25**	1.30***	1.36***	1.25**	1.26**	1.25**
	(0.50)	(0.49)	(0.51)	(0.50)	(0.50)	(0.50)
Business experience and study in economics	2.54	2.63*	2.71*	2.54	2.54	2.57
	(1.57)	(1.51)	(1.56)	(1.57)	(1.57)	(1.58)
GDP per capita	-0.29**	-0.30**	-0.31**	-0.29**	-0.29**	-0.29**
	(0.14)	(0.14)	(0.15)	(0.14)	(0.14)	(0.14)
Inflation	-0.00015*	-0.00015*	-0.00017**	-0.00015*	-0.00015*	-0.00015*
	(0.000078)	(0.000083)	(0.000083)	(0.000078)	(0.000078)	(0.000077)
Trade	0.12***	0.12***	0.13***	0.12***	0.12***	0.13***
	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.048)
Government expenditures	0.064	0.063	0.051	0.064	0.064	0.065
	(0.089)	(0.088)	(0.10)	(0.089)	(0.089)	(0.090)
Resources rents	-0.015	-0.014	0.0050	-0.015	-0.015	-0.017
	(0.075)	(0.075)	(0.076)	(0.075)	(0.075)	(0.077)
Population	-0.041**	-0.076	-0.072	-0.041**	-0.041**	-0.041**
	(0.020)	(0.055)	(0.055)	(0.020)	(0.020)	(0.020)
intrastate conflict during the year	0.48	0.48	0.41	0.48	0.49	0.44
	(0.37)	(0.38)	(0.39)	(0.37)	(0.37)	(0.37)
Type of dictature (civil as reference):						
Military	2.32	2.13	2.16	2.32	2.31	2.24
	(1.46)	(1.43)	(1.63)	(1.46)	(1.47)	(1.49)
Royal	-0.95	-1.30	-1.59	-0.95	-0.95	-1.17
	(2.08)	(2.28)	(2.44)	(2.08)	(2.07)	(2.21)
Communist / radical left leader	0.18	0.21		0.18	0.18	0.24
	(2.48)	(2.43)		(2.48)	(2.47)	(2.47)
Freedom House political rights index	-0.12	-0.12	-0.13	-0.12	-0.12	-0.14
	(0.23)	(0.24)	(0.26)	(0.23)	(0.23)	(0.24)
Constant	-11.3**	-11.6***	-11.2***	-11.3**	-11.2**	-11.4**
	(4.35)	(4.38)	(4.22)	(4.35)	(4.35)	(4.53)
Country fixed effects	yes	yes	yes	yes	yes	yes

Year fixed effects	yes	yes	yes	yes	yes	yes
Observations	1,413	1,393	1,326	1,411	1,401	1,386
Adjusted R-squared	0.24	0.24	0.25	0.24	0.24	0.24

Notes: Standard errors in brackets are clustered by country.*, ** and *** mean respectively p<0.1, p<0.05 and p<0.01

Table 6: Public characteristics and foreign intervention in our estimation sample

	Foreign imposition	
	No	Yes
	(N=1,269)	(N=20)
Education level:		
primary	5.28 %	0%
secondary	19.64 %	65 %
graduate	45.78 %	30 %
postgraduate	29.30 %	5 %
Neither study in economics nor business experience	88.97 %	100 %
No study in economics and business experience	1.81%	0
Study in economics and no business experience	4.73 %	0
Study in economics and business experience	4.49 %	0

Note: Foreign imposition takes on the value of one if the dictator was foreign-imposed or if his direct predecessor was removed by a foreign intervention.

Appendix A: Description of variables

Variable	Description
Primary	Dummy variable equal to one if leader's educational attainment is primary education and to zero otherwise. Source: Ellis, Horowitz and Stam (2015).
Secondary	Dummy variable equal to one if leader's educational attainment is secondary education and to zero otherwise. Source: Ellis, Horowitz and Stam (2015).
Undergraduate	Dummy variable equal to one if leader's educational attainment is undergraduate education and to zero otherwise. Source: Ellis, Horowitz and Stam (2015).
Graduate	Dummy variable equal to one if leader's educational attainment is graduate education and to zero otherwise. Source: Ellis, Horowitz and Stam (2015).
Business experience	Dummy variable equal to one if the leader has prior professional experience as a businessman and to zero otherwise. Source: Baturo (2016).
Study in economics	Dummy variable equal to one if if the leader received education in economics and to zero otherwise. Source: Baturo (2016).
GDP per capita	GDP per capita in constant 2010 USD. Source: World Bank (2017).
Inflation	Consumer price index (annual %). Source: World Bank (2017).
Trade	Trade as a share of GDP. Source: World Bank (2017).
Government expenditures	General government final consumption expenditures (excluding military expenditures) as a percentage of GDP. Source: World Bank (2017).
Resource rents	Natural resource rents as a percentage of GDP. Source: World Bank (2017).
Population	Population in million inhabitants. Source: World Bank (2017).
Intrastate conflict	Dummy variable for ongoing intrastate armed conflicts (>25 battle-related fatalities). Source: UCDP/PRIO (2017).
Type of dictatorship	Regime type (civilian dictatorship, military dictatorship, monarchy). Source: Cheibub, Gandhi and Vreeland (2010).
Civilian dictatorship	Dummy variable equal to one if the dictatorship is a civilian one, zero else. Source: Cheibub, Gandhi and Vreeland (2010).
Military dictatorship	Dummy variable equal to one if the dictatorship is a military one, zero else. Source: Cheibub, Gandhi and Vreeland (2010).
Monarchy	Dummy variable equal to one if the dictatorship is a monarchy, zero else. Source: Cheibub, Gandhi and Vreeland (2010).
Communist / radical left	Dummy variable equal to one if the ruling party is Communist or from the far-left family and to zero otherwise. Source: Baturo (2016).
Political rights	Freedom House political rights index, 1 (free) to 7 (unfree). Source: Quality of Government (2017).
Political experience	Years of political experience prior to assuming office. Source; Baturo (2016).
Age	Leader's age. Source: Goemans, Gleditsch and Chiozza (2009).
Foreign education	Dummy variable equal to one if the leader was educated abroad. Source: Baturo (2016)
Foreign imposition	Dummy variable equal to one if the leader was imposed by another state or his predecessor lost power due to foreign intervention. Source: Goemans et al. (2009)

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